## REMARKS/ARGUMENTS

### Election/Restrictions

Applicant affirms the election of Group II, claims 43-57, without traverse.

### Amendment to the Specification

The Specification has been amended to overcome the informalities as suggested by the Examiner and a proper reference as being a Divisional application has been incorporated.

### Claims define allowable subject matter over the applied art

### 102 Rejections

Applicant respectfully traverses the rejection of Claims 43-48, and 50 under 35 USC 102(e) as being anticipated by Hu et al. (US Pat. No. 6,642,672) and the rejection of claims 55-57 under 35 USC 102 (b) as being anticipated by Shusterman et al. (US pat No. 5,321,373).

Applicant respectfully submits that Hu does not disclose, teach, or suggest the following recitations of independent claim 43 (with emphasis added):

> 43... a common mode choke comprising **a common mode core** wound with at least **two common mode coils**; and
>
> a differential mode choke comprising **a differential mode core** wound with at **least one differential mode coil**...

For anticipation under 35 USC 102, the reference must teach every aspect of the claimed invention, either explicitly or impliedly.

With respect to claim 43, Hu does not disclose, teach, or suggest, either explicitly or impliedly, the above highlighted limitations of an integrated choke assembly, namely a common mode core wound with at least two common mode coils and a differential mode core wound with at least one differential mode coil.

In contrast, Hu appears to describe an integrated filter with common mode and differential mode functions through a set of configurations entirely distinct from Applicant's invention as recited above. In

general, Hu's apparatus has two magnetic cores and only two windings wound on a frame. Hu discloses different combinations of differently shaped cores, for example rectangular and I-core, theta shaped core and I-core, theta shaped core and E core, rectangular core and E core (Page 1, Abstract). In all these configurations, only two windings are employed which function both as common mode and differential mode windings. The two windings, 403 and 404 in Fig. 5, 603 and 604 in Fig. 7, 703 and 704 in Fig. 8A-C, and 913 and 914 in Fig. 11A -B are wound on one of the cores and the second core is spaced from the first one with the air gaps controlling the differential mode flux. (column 4, lines 33-35; column 5, lines 103, lines 18, 49, 50; and column 6, lines 24-25, 50-52). The two windings in Hu are not designated as being differential or common mode windings since each functions as both. Thus there is no distinct set of coils used for differential mode and common mode functions as in Applicant's invention. And more specifically, Hu does not use three coils, two for common mode core and one for differential mode core as recited in above highlighted claim 43.

With respect to the dependent claims 44 and 47, Hu is completely moot on the issue of connecting the windings in series, and, since there is no distinction in Hu between differential mode and common mode coils, this aspect is not addressed in Hu. With respect to claim 45, although Hu mentions different permeability cores, Hu does not disclose, teach or suggest, wounding of a coil around the lower permeability core as is recited in dependent claim 45. With respect to claim 46, although Hu shows Es and Rectangular cores, there are no coils wound around the E legs. With respect to claim 48, Hu does not disclose, teach or suggest a top closed rectangular core wound with three common mode top coils, a bottom closed rectangular core wound with three common mode bottom coils, and a differential mode core with three posts and a respective differential mode coil wound on each post. With respect to claim 50, Hu similarly does not disclose at least the differential mode core with two posts with a differential mode coil on each post.

Applicant respectfully submits that Shusterman does not disclose, teach, or suggest the following recitations of independent claims 55 and 57(with emphasis added):

> 55.... a common mode core, wherein the common mode core **comprises a closed rectangular core wound with two common mode coils**; and
>
> ...a differential mode core, wherein the differential mode core comprises **a U core wound with two differential mode coils on each leg**, the legs of the U core facing the closed rectangular core and sharing a part of magnetic flux path of the closed rectangular core.
>
> 57. ...a common mode core, wherein the common mode core **comprises a top**

> **closed rectangular core wound with one common mode top coil and a bottom closed rectangular core wound with one common mode bottom coil**; and
>
> ...a differential mode core, wherein the differential mode core comprises **two posts with a differential mode coil on each post**, the two posts arranged between the top and bottom closed rectangular cores and sharing a part of top and bottom rectangular magnetic flux paths.

With respect to claim 55, Shusterman does not disclose, teach, or suggest, either explicitly or impliedly, the above highlighted limitations of an integrated choke assembly, namely a rectangular common mode core with two common mode coils and a differential mode U core wound with two coils on each leg and the legs of U core facing the rectangular core. Similarly with respect to claim 57, Shusterman does not disclose, teach or suggest a common mode core with a top closed rectangular core wound with one top coil and bottom closed rectangular core wound with one bottom coil and a differential mode core with two posts, each having a coil and the posts arranged between top and bottom closed rectangular core.

Shusterman, in complete contrast, describes a noise filter that uses only one magnetic core, without any reference at all to common mode cores or differential mode cores and the respective coils as recited above in the independent claims 55 and 57 of the Applicant's invention. The magnet core in one embodiment in Shusterman includes a first pair of through holes having a U-shaped electrically conductive wire fitted therein and a second pair of through holes having a plurality of U-shaped electrically conductive wires fitted therein (column 2, lines 27-33). The U shape in Shusterman is thus merely referring to the wires and not the cores (Page 1, Abstract, "U shaped wires passing through a ferrite core" and column 2, lines 28-34). Thus Shusterman is completely devoid of any disclosure, teaching or suggestion that may anticipate the applicant's invention as recited in independent claims 55-57 and highlighted above.

Accordingly, Applicant respectfully submits that independent claims 43, 55 and 57 define allowable subject matter over the applied references. Claims 44-48 and 50 depend directly or indirectly from claim 43 and claims 56 depends directly from claim 55, and are similarly believed to be allowable. Withdrawal of the rejections is respectfully requested, and allowance of the claims is respectfully solicited.

**103 Rejections**

Applicant respectfully traverses the rejection of Claims 48 and 51-54 under 35 USC 103(a) as being unpatentable over Hu et al. in combination with Shusterman et al. and Lipo et al. (US Pat 5646, 498). Claim 48 depends from an independent claim 43, which Applicant believes to be in condition for allowance over Hu and Shusterman for the reasons discussed above regardless of what Lipo might be interpreted to teach or suggest. With respect to independent claim 51 (and dependent claim 52), Applicant respectfully submits that neither Hu nor Shusterman nor Lipo taken individually or collectively teach, suggest, or disclose the recitations of a common mode rectangular core with three common mode coils and a differential mode E-core with a coil in leg of the E core. Similarly with respect to independent claim 53 (and dependent claim 54), neither Hu, nor Shusterman nor Lipo, taken individually or collectively, disclose, teach or suggest the recitations of a common mode core, with a top closed rectangular core wound with three common mode top coils and a bottom closed rectangular core wound with three common mode bottom coils; and a differential mode core with three posts, with a respective differential mode coil on each post.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.

As discussed hereinabove Hu and Shusterman do not teach, suggest or disclose claim limitations directed towards using distinct coils, at least two for common mode and one for differential mode functions as recited in independent claims 43, and 51.

Lipo merely describes a technique for using a four winding common mode inductance on an output side of an inverter drive to avoid excess radiation conduction and emission from inverter drives. Lipo is completely devoid of any disclosure, teaching or suggestion for at least using a differential mode core with at least one differential mode coil as recited in independent claims 43, 51 and 53 of the Applicants Invention.

Accordingly, Applicant respectfully submits that the Office Action did not make a prima facie case of obviousness for the independent claims 53, 51 and 53.

Claim 48 depends directly from claim 43, claim 52 depend directly from claim 51 and claim 54 depends directly from claim 53. Applicant respectfully submits that independent claims 43, 51 and 53

are patentably distinct from the applied references for the reasons discussed above and that claims 48, 52 and 54 are similarly allowable over the applied references.

**Summary**

In view of the foregoing, Applicant respectfully submits that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

By _____

Ann M. Agosti
Reg. No. 37,372
General Electric Company
Building K1, Room 3A66
One Research Circle
Niskayuna, New York 12301
Telephone: (518) 387-7713